Topographic Engineering Center 3D Solid Modeling

Description and Background

Military operations in cities, mountainous areas, or other complex terrain often require a method to accurately depict the complexity of geographic features and their interrelationships. Traditionally, sand tables or scale models have been used to do this. These methods are generally labor intensive, may take weeks or longer to build, and have difficulty depicting relief or vertical features to scale. Using state-of-the-art solid modeling technology, the Topographic Engineering Center (TEC) now has the capability to produce durable, solid 3D models quickly, easily, and relatively inexpensively from digital geospatial information.

Key Capabilities

Ability to exploit digital elevation models and imagery to produce solid models that realistically depict operational environments. Individual models take from 8-12 hours to produce, depending on size and complexity, and can be connected to make models of unlimited size. The models are lightweight, easily transportable, and durable enough to withstand repeated use in a variety of operational environments. These highly detailed models increase users understanding of complex geospatial features and are of particular value in built-up areas.

Applications

Course-of-action development, mission planning and rehearsal, site selection, terrain visualization, terrain analysis, hydrological analysis, environmental analysis, and civil engineering.

Current Status

The Topographic Engineering Center is now producing 3D solid models using the ZCorp Model 810 3D printer. This printer has the capability to produce 3D solid models with maximum dimensions of 20" x 24" x 16" (500 x 600 x 400 mm).

Point of Contact

For more information on 3D Solid Modeling, please contact the Topographic Engineering Center, Current Operations Team. POCs: Julie Corn, Julie.K.Corn@erdc.usace.army.mil, (703) 428-6013 or Charles Lopez, Charles.H.Lopez@erdc.usace.army.mil, 703-428-6921.